

IN THE CLAIMS:

1 1 (Currently Amended). A large bandwidth add-drop filter for a planar waveguide
 2 device comprising:

3 ~~at least one coupler~~ an input coupling structure receiving an input signal; and

4 an output coupling structure providing an output signal; and

5 at least two ~~grating~~ waveguides connected to said input and output coupling structures,
 6 said at least two waveguides having a ~~with~~ superstructure and superperiod ~~having a~~ photonic
 7 band-gap ~~covering at least 4 optical channels~~ grating, including variations of grating amplitude
 8 and grating phase and grating periodicity, wherein said photonic band-gap grating covers the
 9 spectral range of optical frequencies added or dropped by said filter, wherein said filter
 10 provides at least one pole and at least one zero at a frequency within said spectral range.

1 2. (Original) An add-drop filter as claimed in claim 1, wherein the photonic band-gap
 2 covers at least 8 optical channels.

1 3. (Cancelled)

1 4. (Original) An add-drop filter as claimed in claim 1, wherein the grating waveguides
 2 have a sampled grating strength profile.

1 5. (Original) An add-drop filter as claimed in claim 1, wherein at least one coupler
 2 comprises a directional coupler.

1 6. (Original) An add-drop filter as claimed in claim 1, wherein at least one coupler
2 comprises multi-mode interference waveguides.

1 7. (Original) An add-drop filter as claimed in claim 1, wherein at least one coupler
2 comprises diffracting slab waveguides.

1 8. (Previously Presented) An add-drop filter as claimed in claim 1, wherein at least one
2 coupler comprises diffracting slab waveguides.

1 9. (Original) An add-drop filter as claimed in claim 1, further comprising two
2 couplers, in which a first coupler provides an input port and a drop port and a second coupler
3 provides an add port and a transmission port.

1 10 (Previously Presented). An add-drop filter as claimed in claim 1, wherein said
2 superstructure provides spectrally periodic transmission bands aligned with optical channels.

1 11. (Previously Presented) An add-drop filter as claimed in claim 1, wherein said
2 superstructure has one or multiple superperiods.

1 12. (Original) An add-drop filter as claimed in claim 1, wherein the grating
2 waveguides have sampled grating strength profiles providing a window transmission function,
3 covering a band of optical channels.

1 13. (Original) An add-drop filter as claimed in claim 1, wherein the grating
2 waveguides have sampled grating strength profiles providing two or more window functions,
3 each covering bands of optical channels.

1 14. (Original) An add-drop filter as claimed in claim 1 further comprising a grating
2 tuner for changing a group velocity of one or more of the grating waveguides.

1 15. (Previously Presented) An add-drop filter as claimed in claim 14, wherein the
2 grating tuner heats at least one of the grating waveguides.

1 16. (Cancelled)

1 17. (Cancelled)

1 18. (Previously Presented) An add-drop filter as claimed in claim 1, wherein one or
2 more grating arms comprises delay-line waveguides.